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THE JERSEY VOLE (*EVOTOMYS CAESARIUS*, MILLER).

BY GORDON DALGLIESH.

(PLATE I.)

THE investigations of modern zoologists with regard to our outlying islands' fauna have met within recent years with singularly happy results, the mice and voles receiving a very large share of attention. The painstaking and careful work of such naturalists as Barrett-Hamilton, De Winton, Millais, and Bunting must be of the greatest value and help to future field naturalists. To Major Barrett-Hamilton credit is due for having been the first to discover the Jersey Vole. It was, however, left for an American mammalogist, Mr. G. S. Miller, to first name and describe its peculiarities. In his paper, "Notes on the Mammals of the Channel Islands" (*Zool.* 1908, p. 462), Mr. R. H. Bunting first drew attention, in the pages of 'The Zoologist,' to this hitherto new and little-known rodent.

That the Jersey Vole should have escaped notice for so long is not surprising when one considers for how long the Orkney Vole and the Yellow-necked Mouse remained unrecognized. It should be remembered, too, that previous to the researches of the above-named naturalists our mammalian fauna had but lightly been critically examined. When Mr. Bunting returned from his collecting trip in the Channel Islands he kindly presented me with the skin and some skulls of the Jersey Vole.

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Beyond just casually noticing that the specimen seemed larger than the British Bank-Vole, I took no further notice of the specimen until last November, when, having occasion to go through my collection of small mammals, I noticed a remarkable difference between it and *Evotomys glareolus*. I determined to try and obtain further specimens, and wrote to a friend in Jersey to get me some. The result of my letter was seven adult Voles, and I at once saw that I had something very different from the Common Bank-Vole. Beyond just quoting what Mr. Miller wrote, that *E. caesarius* was "much darker in colour," Mr. Bunting gives us no description of the external characters, relying more on the shadowy characters of the cranium for his description. The Jersey Vole is remarkable in many ways. Its close affinity to the Common Bank-Vole of England is questionable, differing widely from that animal. That "things are not always what they seem" is a saying that is very often only too true. Writing of birds, Seebohm remarks:—"It is quite a mistake to suppose that the European Jay is more closely allied to the Japanese than to the Siberian or Chinese Jays. . . . It is nearest allied to the Siberian Jay" [*Garrulus brandtii*]. The above remarks would bear an analogy to the Jersey Vole, whose nearest ally (as anyone would naturally suppose) would be *E. glareolus*; but this in a sense is far from being the case. As far as Britain is concerned, certainly *E. glareolus* and *E. skomerensis* are its nearest allies. Mr. Miller says it is closely allied to *E. nageri*, *E. vasconiae*, and *E. norvegicus*, all three being found in the colder portions of Europe. According to this statement, zoologists are here confronted with a puzzling but interesting problem which will be well worth attention to try and solve, especially the devotees of zoogeography. As Mr. Bunting truly remarks, that an animal like *E. caesarius*, "which inhabits an island with so mild a climate as Jersey possesses, is interesting to notice."

It would appear, as the result of my examinations, that the Jersey Bank-Vole undergoes two phases of pelage—a summer and autumn and a winter (and spring?) one.

Description of an adult male (summer).—Muzzle and cheeks grey, intermixed with long black hairs; a long irregular area of deep reddish brown, each hair tipped black, extending from fore-



head to rump, resembling in tone the coloration of *E. glareolus*. Extremity of rump and sides of body a deep grey. Under parts resembling that of *glareolus*, grey, suffused with a yellow tinge. Tail more sparsely covered with hair than that of *glareolus*. The winter pelage differs so greatly from that of summer as to be at once noticeable even to the most casual observer.

Adult male (winter).—The whole of the upper parts very dark, looking as if the red of summer had been covered with a deep grey covering, but not so deep as not to allow the red to be just noticeable. In fact, the winter specimens approach very closely in colour that of the Field-Vole (*Microtus agrestis*), only, of course, being of a much darker shade. To try and convey an adequate conception of the coloration, I would say that had a Jersey Vole hitherto quite unknown been taken, say, in England, it would at once suggest—at least, to my mind—a Bank-Vole approaching melanism, or as a hybrid (granting, of course, that such a thing were possible) between *Microtus agrestis* and *Evotomys glareolus*. This is, at any rate, the best description I can give to convey the remarkable deep tone of the fur. The fur of a winter specimen is soft, thick, and woolly, about from 10 to 12 mm. on the back, against 6 mm. to that of summer. The British Bank-Vole is probably a trifle darker in winter than in summer. I suspect, too, that there is a race of Water-Voles inhabiting the fens of Cambridge which differ from the typical specimens in their much darker coloration, being midway between *Microtus amphibius typicus* and *M. amphibius ater* (the melanic variety); but about these I hope to say a few words in a future number of 'The Zoologist.'

It might be as well here to draw attention to the external features by which an *Evotomys* Vole and a *Microtus* Vole can be distinguished. Going over this well-worn path, so to speak, it is necessary to point out a further peculiarity of the Jersey Vole. The Field-Vole and Orkney Vole are Voles *par excellence*. They differ from the true mice in being of a heavier build, ears nearly concealed in thick fur, in possessing a short stumpy tail, and small eyes. They are, according to the conviction of many, a specialised Hamster (*Cricetus*), or a Hamster a specialised Vole. Between these voles and the true mice (*Mus*) comes *Evotomys*, a mouse-like vole having affinities with the voles in its shape,

and affinities with the mice in possessing a longer tail than the true voles, larger ears, and eyes. *E. caesarius* has a much more vole-like appearance than *E. glareolus*. In fact, it again should by rights be placed between *Microtus* and *Evotomys*. In its colour, smaller eyes, and less prominent ears it agrees with *Microtus*; in its longish tail and reddish summer pelage it agrees with *Evotomys*. No doubt to those who place more reliance on the characters of the cranium the Jersey Vole stands revealed as a true *Evotomys*. On the skull I shall not dwell. This has been dealt with fully by Messrs. Bunting and Miller. Regarding size, the Jersey Vole appears at first sight to be a much larger animal than *E. glareolus*, but actual measurements show but little difference in many individual specimens. Bunting writes:—"Specimens which have recently *been sent* [the italics are mine*] to me show measurements slightly exceeding those of the type specimens." My specimens (except the one presented to me by Mr. Bunting) show a decided decrease in measurements. It is only fair, however, to state that my measurements were taken from spirit specimens, or what would probably be regarded as such. All seven specimens were caught on Nov. 23rd, and at once disembowelled, stuffed with spirit-saturated wool, and forwarded. I received these on Nov. 25th, and at once took measurements. The spirit *may* have caused shrinkage, but I hardly think so, seeing that they were not wholly immersed in the fluid. Now, as will be seen, while my specimens decreased, Mr. Bunting's, which I examined and were also spirit specimens, exceeded the type. The probable explanation lies in the fact that Voles vary a good deal in size.† A careful series of measurements of English Bank- and Water-Voles have shown me this to be the case. Appended is a table of average measurements of the Jersey Vole, with those of Mr. Bunting's in parenthesis. It will be seen that the latter measurements, while exceeding mine in the maximum, are less

* For reasons see further on.

† A Field-Vole (*Microtus agrestis*), taken by myself at Thursley, Godalming, Surrey, on May 5th, 1910, measured: H. B., 120 mm.; tail, 37 mm.; H. F., 20 mm.; ear, 13 mm. Mr. Guy Dolman, of the Natural History Museum, to whom I presented the specimen, said they had none so large in the National Collection, and that mine must be a record.

in the minimum of H. B. and tail. For comparison I have added a table of measurements of the Common Bank-Vole. (All measurements in millimetres) :—

Evotomys cæsarius.

	H. B.	TAIL.	H. F.	EAR.
Maximum...104 (120).....	51 (54).....	18 (21).....	11 (12·5)	
Minimum... 94 (91).....	45 (41).....	17 (17·5).....	10 (10·5)	

Evotomys glareolus.

	H. B.	TAIL.	H. F.	EAR.
Maximum.....	96.....	46.....	17.....	12
Minimum.....	82.....	40.....	16.....	10

To summarise the interesting points of the Jersey Vole, it should be specially noted that we have here an animal enjoying a much milder and more sunny climate than that of England, yet in spite of this having the appearance of and being allied to Voles of a colder climate than that of Britain on the whole. Students of evolution have here an interesting problem as to the origin of this Vole. It may be that the Jersey Vole is the descendant of a race of Voles that migrated south (in the same way that Lemmings of to-day migrate) when Jersey was connected with the mainland. Query : Are the Voles aberrant descendants of a Lemming-like ancestor ?* No definite conclusion can be gained until a careful and thorough study is made of the Continental Voles. At present the Jersey Vole is only known from the island whose name it bears. It may therefore be found on the mainland. I am strongly inclined to think that the Skomer Vole (*E. skomerensis*) will one day be found occurring on the mainland of Wales (cf. Zool. 1907, p. 302).

If we do eventually discover the Jersey Vole or its prototype in Continental Europe, its range can then be worked out, and its limit may extend to the habitat of the northern Voles, to which, as Mr. Miller says, it is allied.

The next interesting feature is the dark colour of the Jersey Vole. Many insular forms of both mammals and birds exhibit this characteristic feature, as, for example, the dark Song-

* Barrett-Hamilton (P. Z. S., May 19th, 1896, p. 602) says :—" Mr. Borhote informs me that the Norway Voles were very Lemming-like in appearance when alive, and he found them inhabiting the same burrows as Lemmings."

Thrushes (*Turdus musicus*) of the Hebrides, and the Wren (*Troglodytes p. hirtensis*, Seebohm) of St. Kilda. The Orkney Vole (*Microtus orcadensis*) is also of a darker shade than the Field-Vole (*M. agrestis*). It is interesting here to note that in the former species the adults very closely resemble immature examples of the Water-Vole. Millais mistook his species at first sight for a Water-Vole (Zool. 1904, p. 241).

There are many interesting problems connected with our British fauna which are well worth consideration. Why has the Lemming (*Myodes norvegicus*), once a British mammal, become totally extinct in Britain, though it swarms in countless numbers in other countries? Its near ally, the Field-Vole, on the other hand, remains with us, and often increases in such overwhelming numbers as to cause "Vole plagues." Yet its mortality must be enormous when we consider that it, together with Field-Mice, forms the staple diet of a host of carnivorous mammals and birds.

The most important literature and synonymy at present available with regard to the Jersey Vole and other Voles is as follows:—

JERSEY VOLE.

Evotomys cæsarius, Miller, 'Annals and Magazine of Natural History,' February, 1908; Bunting, 'Zoologist,' 1908, p. 462 (December).

BANK-VOLE.

Microtus (Evotomys) glareolus, auctorum.

Evctomys hercynicus britannicus, Miller, "Preliminary Revision of the European Red-backed Mice," 'Proceedings' of the Washington Academy of Science, vol. xi. pp. 83-109 (1900).

Other Species and their Allies.—Miller, "On the Genera and Subgenera of Voles and Lemmings," United States Department of Agriculture (Division of Ornithology and Mammalia), North American Fauna, No. 12, July 23rd, 1896.

THE PEREGRINE FALCON IN THE SOUTHERN MIDLANDS.

BY O. V. APLIN, F.L.S.

I HAVE just examined a very fine and unusually dark coloured Peregrine in the plumage of the first year, which was shot at or near Buckingham on Nov. 7th, 1910. I saw the body after it was skinned, and found it very well nourished, and the bird was probably following the Wood-Pigeons, which are abundant just now. The Peregrine is a regular visitor to the southern midlands. Those that occur in autumn—at least, those that get shot and I examine—are almost invariably young birds of the year, the “passage hawks” of falconers. On the other hand, when I hear of a falcon having been killed in mid-winter or in early spring (*e.g.* March), and I get a chance of seeing it, I almost always find (writing from memory at this minute, I should say I always have found) that it was an adult bird. The last I heard of was at Christmas, 1909—an old blue female shot at Chacombe, just over our boundary, in Northamptonshire. The young birds do not seem to stay long in autumn, and why they do not re-pass here in spring (if they do not) I do not know. Both young and old, when they are with us, usually either haunt woods where there are many Wood-Pigeons, or large sheets of water where there are wildfowl. Byfield Reservoir is visited, and I have heard of two passage hawks killed in one autumn at Boarstall Duck Decoy, where they are a great nuisance, and would soon ruin the decoy for the season if they were allowed to remain. Peregrines also sometimes frequent the river valleys if they are partly flooded, and there are any wildfowl and Peewits about. I am told also that they take up their quarters on the arable land on the lower slopes of the Chiltern Hills (retiring no doubt to roost in the woods that cap the hills in places), and there levy a toll on the Partridges. They frequent big open fields, and when on the watch, or when

gorged with food, sit on a clod of earth, where their lighter coloured breasts make them conspicuous. When gorged they will sometimes let a mounted man ride fairly near them before taking wing. Just round here (Bloxham) I think they live on Wood-Pigeons, but I have sometimes seen the remains of Mistle-Thrushes, which looked as if they had been killed by a falcon, and once I saw a falcon try to carry off a Red-legged Partridge which had been shot in a "drive" during a gale of wind, and fallen a long way behind the guns. The last Peregrine I saw about here (apparently from its size a female) was on March 29th last, over some grass-closes with a good deal of hedgerow timber, just outside the village; it was flying just over the tops of the trees, and no doubt was looking for a Wood-Pigeon. I was not near enough to see if it was an old blue bird or not.

HABITS OF THE CRESTED GREBE.

BY O. V. APLIN, F.L.S.

ON October 8th, 1910—a beautiful, calm, sunny day—I was fishing at Byfield Reservoir. When watching, through a telescope, one of a pair of Crested Grebes (still retaining breeding dress, although faded and not so bright as in the case of the bird I saw the autumn before last),* which were followed about (sometimes at a distance) all day by two half-grown young, keeping up their peeping cries incessantly, I saw it make a shallow dive and a considerable commotion in the water. It emerged in a few seconds with quite a large fish, comparatively speaking, in its beak, and had some apparent difficulty in dealing with it. Having got a comfortable hold of the fish, it set off swimming rapidly up the water; but finding, I suppose, that it did not go very fast, it took two long dives, and certainly, I think, it covered more space in the time by diving than by swimming. Each time it came up I could see the fish in its bill glittering, and I think it must have been quite between two and three inches long. Swinging my glass in the direction in which the old Grebe was going, I saw the two young birds, straining at their full pace with necks outstretched and craning forward, coming to meet her (or him), and directly after they met. What exactly happened to the fish I do not know; perhaps the old bird dropped it, or dived with it for fun. The young rushed at the old one (or at the fish), and all then went under water, to emerge again at once with a great splashing and disturbance. That was all I could see—a regular worry; and I do not know which of the young got the fish, though no doubt one of them did. The old bird then swam away. There were from twenty to twenty-five Grebes there that day. Except this pair, all the old ones I saw were far advanced in winter dress. The other young ones were full-grown, with the dark lines on their necks very conspicuous. One of these full-grown young flew a long

* 'Zoologist,' 1908, p. 407.

way down the water (gaining a height of twenty or thirty feet) without, as far as I know, being disturbed in any way. I have before this seen them take long flights at this season, and a little later in the year.

The Crested Grebe flies very freely in the autumn. One day early in November, 1898, when I was at this pool, there were some Snipe in the big reed-bed, and a lot of shots were fired at them by two men who had the shooting rights. This alarmed all the birds, including the Grebes (of which I counted fifteen young and old), and they remained very nervous all the rest of the day, long after the shooters had departed. I frequently saw one or other of them rise and fly for some distance over the water, rising to a height of about twenty feet in some cases. They are good fliers and fly fast. Wings narrow and curved downwards. The head and neck is outstretched and depressed, and the legs and that end of the body are also drooped; so the body at the saddle is the highest part of them. This gives them a curious appearance on the wing. The true Divers have something the same shape when in the air. The adult Grebes on that November day looked almost black-and-white birds (the immature birds were duller and more grey), showing a great deal of white on the wings—more white than dark except near the tip. When they are going to pitch down on the water they drop their hind parts and straddle out their legs. I have known Crested Grebes fly in summer, but very rarely.

SUPPLEMENTARY FISH-NOTES FROM YARMOUTH.

BY ARTHUR H. PATTERSON.

SPRATS.—Since my last Annual Notes were published in 'The Zoologist' (1910, p. 451) one or two other interesting occurrences have been noted. Sprats were late in their coming to the Suffolk coast, owing probably to the unsettled, stormy weather that prevailed in November; but towards December they made up for their delay by arriving in prodigious quantities. The Aldeburgh boats made enormous hauls on Wednesday, December 7th, when nine trucks, containing some thousand bushels (of from thirty to thirty-five tons), were sent off by the Great Eastern Railway to London and provincial centres, amongst them being three truck-loads for shipment to Germany. I noticed a goodly quantity from day to day on Yarmouth fish-wharf, in shallow boxes holding on an average three stone. Between Pakefield and Southwold the bay was reported to me on the 17th as "swarming with Sprats." During one breezy day one boat sank in the breakers with forty bushels of Sprats, its rudder being lost and sails torn to ribbons. The fish have been of excellent quality, and I noticed a marked absence of the parasitic eye-sucker (*Lerneonema monilaris*), which is frequent in some less turbulent seasons, nor have I seen the shoals infested with *Idotea* as in some years.

HERRINGS.—The Yarmouth Herring fishery wound up with a catch, in round numbers, of some 34,800 lasts, as against 43,965 lasts in 1909, and 44,362 lasts in 1908. Two interesting instances are worthy of record:—When the Herrings "fell off" in the home waters, an enterprising owner sent a boat down into French waters, where he made a rather surprising haul of fine fish. A Lowestoft trawler, fishing in the vicinity of the light-vessel 'Galloper,' early in December, off the Essex end of the Goodwins, captured a number of Herrings in his trawl. He informed the master of a drifter of his "take," who went there

and shot his nets, obtaining several crans. The Herrings from the Brittany coast, I thought, were somewhat tasteless when cooked.

CUCKOO WRASS. — To my indefatigable young friend, Mr. F. C. Cook, of Lowestoft, I am indebted for placing in my hands the first Cuckoo Wrass (*Labrus mixtus*) I have seen "in the flesh." It had recently been trawled up from the vicinity of the 'Gallopier' (light-vessel), during the second week in December, and, having been laid on the ice, came to port in excellent condition; the colours had, however, much deteriorated, if I may compare it with Couch's brilliant figure, and the drawing of one sent me by the Duchess of Bedford two years ago from the vicinity of the western islands. The blue lines radiating from the eye and running down either side still contrasted strongly against the fawn ground colour; a row of blue spots ran along just below the lateral line, which I have not seen represented in any drawing of this species, which, I believe, varies considerably in the disposition of its brilliant colours. I notice both Couch's and Day's figures give the tail a rounded form; the present fish's was distinctly concave or forked (!). Length, $8\frac{1}{2}$ in. Dr. H. Laver, of Colchester, to whom I mentioned the occurrence, stated that the fish has not hitherto been recorded off the Essex coast, and suggested I should place it on record.

MULLER'S TOPKNOT. — A fine example of this fish was taken at the same time with the preceding. Dr. Laver assures me he has several records of this interesting little fish as taken in the Essex estuary.

[HÆMULON. — I do not make any claim for this American *perciforme*'s admission to more than serious notice, but early in December Mr. F. C. Cook found stranded on Lowestoft beach the head and backbone of a strange fish. On examining it I saw a marked resemblance in the head to that of some Sea-Bream. I sent it to Dr. Boulenger for identification. He described it as one of the *Pristipomatidæ*, with the remark that "no Hæmulon has ever been recorded from the British seas." Dr. Boulenger also truly remarked that no one knows how far fish may travel in ice. I make inquiries as to whether the Lowestoft smacks fished in French waters, and was assured

they do not, their favourite grounds being the vicinity of the Cromer Knowle, and further northward, but still south of the Dogger Bank. Nor do we have any large vessels, such as might necessarily carry refrigerators, come within reasonable distance of Norfolk and Suffolk waters. I merely mention the finding of this *Hæmulon*.]

DORY.—The John Dory (*Zeus faber*), or Doree, may be looked upon, on the Norfolk coast, as more or less of a straggler inshore. I have records of several taken in shrimp- and drift-nets, the largest weighing seven pounds, the smallest the size of a crown piece; but one taken on a hook baited with lugworm, the angler fishing from the beach, is the first specimen I have known hooked in this locality. It weighed one pound, and was captured late in December.

DUTCH SMELTS.—Considerable consignments of Smelts from Holland have been received in this country of late years. They come packed in shallow boxes containing two layers of fish; caught one day, some are on sale in Yarmouth next morning, having come to London by the night-boat, and dispatched thence. I have not dissected any, but have been informed on more than one occasion of numbers of intestinal thread-like worms infesting them.

HERMAPHRODITIC HERRING.—About Christmas-time a labouring man was preparing a smoked Herring for cooking for his tea when he discovered it contained a combined roe and milt. He sent it to me. The anterior portion is composed of well-developed ova, and takes up two-thirds of the length, the posterior ends are milt; the two portions of each lobe look as if they had been neatly welded together.

THE VOCAL AND INSTRUMENTAL MUSIC OF INSECTS.

BY A. H. SWINTON.

(Continued from vol. xiv, p. 432.)

I HAVE a pamphlet, written in German, that explains that numbers of moths and butterflies having striations on the proboscis or palpi can play the trombone when occasion serves, but this instrumentation I have not chanced to hear; those with short tongues would be the most adapted to perform. *Acherontia atropos* is met with in Asia, Europe, Africa, and the islands of Mauritius and Bourbon, into which gardens in the sea it probably has been introduced by human agency. It was already in the Mauritius when the author of 'Paul and Virginia' visited it, for he tells us the inhabitants believed it cast dust when flying through an apartment that caused blindness. Similarly, the inhabitants of Sikkim are said to have a horror of a moth found near the Snowy Mountains. It is said of the other "death's-heads" found in Asia, that *Acherontia lachesis* squeaks like a mouse, and the smaller *styx*, the commoner species or local variety, found in Bengal, when vexed, emits yet shriller sounds. Mr. W. C. Gott says, in the 'Entomologist,' that the caterpillars of *Langia zenzeroides*, that feed on the apricots at Simla, are given to hiss, but that the moth when it emerges only faintly squeaks. Dr. George Gibb tells us, in the 'Canadian Naturalist,' that the *Hemaris thysbe*, which is accounted rare, squeaked loudly when captured, and continued to squeak in captivity.

Owing to their large composite eyes butterflies see all around them, and although the sense of hearing is not correspondingly developed, a perception of freedom seems to prompt those that are strong on the wing to click with exultation as they sail with proud dominion through the azure deep of air, and they, as would appear, produce this running music by jolting an inflated

knobby vein that runs along the inner margin of the fore wing along a curved, raised vein on the hinder. *Pyrameis cardui* that you may see the world over loves to sun on the pathway under the flickering shadow of the tree, and when disturbed returns with pertinacity to the delightful spot and expands its wings as before. An inquirer in 'Science Gossip' for 1878 asks: "Have you observed a kind of metallic sound when the 'painted lady' is on the wing?" and Mr. J. I. Fountain answers in the 'Country-side' for November, 1906, that when missed by a stroke of the net the rouged beauty is wont to return with a distinct and petulant "click-click!" It is wonderful this truculent butterfly should be so widespread; it is disclosed in numbers from land overrun with thistles, and its periodical migrations in Europe in 1741, 1828, 1836, and 1879 will in a measure account for it, but I have seen it enjoying the sunshine on the stony declivity that leads up to Napoleon's place of banishment in St. Helena, where it could only have been brought in a ship; this was in 1865. In 1875 Mr. Wollaston saw it there in company with that little wandering blue *Polyommatus beticus* and a black and white *Danais*. In the Brazils and Isthmus of Panama is heard the parchment cackle of the "whip butterflies," *Ageronia* or *Peridromia*, *feronia*, *ferentina* (*fornax*), and *amphione*, when on the wing. These are said to feed and sun upon the fallen oranges, where the *Dalshampia* abounds, or alighting head downwards, with their wings expanded to catch the warmth, to crawl about the trunks of the *Cassia* and *Mimosa*, where they are protected by their purple tints that match the grey bark and sunlight shadows. Langsdorff, who met with *ferentina* in the island of St. Catherine, off the coast of Brazil, remarked that it made a noise like a rattle when it flew away, and the sound has since been commented on by Darwin, Wallace, Van Volxen, and Edwards, and compared to the "click-click!" of a toothed wheel or the startling din of a watchman's rattle. It is emitted by both sexes when they are chasing one another, and the crackling of *amphione* is said to be more grating. When approached, *feronia* and *ferentina* use their legs for running away, a performance not expected of a butterfly. The production of the sound seems obvious, for the vein that runs along the inner margin of the fore wing is at its origin inflated into two bead-like bladders

that crick like a scratchy pen over the circular vein at the base of the hinder. The specimen of *Ageronia feronia* I have been experimenting on comes from the forests of Bahia, where Darwin heard its parchment rustle during the wet season at the close of February, 1832; my father was there eight years later, and he has left behind him his sketches of the bay that transport me to the groves where it takes its delight. Fritz Müller, on Oct. 13th, 1876, saw two other butterflies chasing one another and making a similar clicking sound, after which they settled with their wings horizontally expanded on the dry stems of the *Tagnara* or bamboos that flourish at the mouth of the River Trombudo, a tributary of the Itajahy. He captured one, and it proved to be *Eunica margarita*. Mr. W. J. Kaye informs us that *Gynæcia dirce*, found in Jamaica and Brazil, makes a loud clicking sound when flying, and Mr. Edwards heard a similar sound when the butterflies of the genus *Prepona*, also inhabitants of Tropical America, took flight from the tree-trunks. The caterpillars of the *Paphia glycerium* feed on the *Croton capitulatum* that grows on the prairies that border the course of the Mississippi, and when the butterfly takes wing its flight is rapid, and a dry and whistling sound is heard; like the "painted lady," it returns when disturbed to its sunny resting-place, and Dr. L. K. Hayhurst, in February, 1870, found it hybernating in company with the "painted lady" and "Camberwell beauty" in a hollow of a tree filled with hickory-shells. What is remarkable, its caterpillar is a leaf-roller; that of the "painted lady" has something of this habit; those of the "skipper butterflies" are leaf-rollers. I do not know whether there is an existing link like our little *Nemeobius lucina*, that flies among the wild columbine in the New Forest, to connect the species that have four legs with those that have six.

From resentment certain butterflies rustle their silken robes; the sound is produced as before, only the vein that runs along the inner margin of their fore wing, and which moves over the curved one on the hinder, is notched like a file. Mr. Edwards tells us *Charaxes sempronius*, a native of Australia, as it alights on the branches of the sweet-scented blossoms of the *Bursaria spinosa*, closes its wings with a grating sound, which it repeats testily when disturbed. The year 1837

came after two seasons when the "clouded yellow butterflies" *hyale* and *edusa* had respectively abounded in the South of England. It was, astronomically, a year of most sun-spots, and no doubt of heat-waves, when an unusual cloud of locusts passed over Benares, in India. In the warm month of July, Mr. Henry Buist, then living at St. Andrews, on the east coast of Scotland, saw the "humming-bird moth" poise over the flowers in his garden, and when October came he started up from the flower-beds a "peacock" and "red admiral," beautiful butterflies that are rarely seen on the northern side of the Tweed, although we hear that in 1894 and 1899 the latter has been no rarity in the seaside resorts down the Clyde, where I never noticed it. Anywise, my mother, a Scotchwoman, was quite overcome with the loveliness of the *Vanessa* butterflies that she had not before seen when she came to live in Hampshire, and I well remember her taking me into an orchard planted with filberts and ribstones to see the "red admirals" feasting on the rotten apples that she had found a way of capturing by letting fall her pocket-handkerchief. Later on, when the frost-flowers embroidered the window-pane, I happened to dislodge some "peacocks" (*Vanessa io*) from their winter sleep among the cobwebs, and Bats that depended from the rafters of a hayloft, and I recall the delight I experienced on beholding the proud beauties expand their inky wings on the floor and disclose their iris eyes set in red velvet, while their fore wings chafed on the hinder with a rustle, resembling that made by the fallen leaves when stirred by the north wind they moved in twinkling dance over the pathway. So likewise a "peacock butterfly," disturbed when Mr. Hewitson's room at Weybridge was undergoing a spring cleaning, resented the proceeding by spreading its wings on the floor and rubbing them together with a sound of sandpaper. And it would be interesting to know whether those Himalayan butterflies of the genus *Kallima* he had preserved in his elegant cabinet, whose wings, when closed, so exactly resembled a rhododendron-leaf purpled by the frost, or a rhododendron-leaf brown and withered and mottled over with fungus, had learnt to play this forest melody. Among their natural surroundings the *Vanessa* butterflies are wont to pass the winter dormant in the hollow of old tree-

trunks, where, when they have closed their wings, they are protectively concealed by their resemblance to the horseshoe fungus that there abounds, and in England they seem to prefer the hospitality offered by the wide-spreading beech. Mr. Doubleday says, in 'The Zoologist':—"Last winter some large stacks of beech-faggots, which had been loosely stacked in Epping Forest in the spring with the dead leaves adhering to them, were taken down and carted away, and among them were many scores of *io*, *urticæ*, and *polychloros*." Once upon a time the Rev. Joseph Green, when out on one of his historical pupa-digging expeditions, was about to insert his trowel into a cavity at the root of a Buckinghamshire beech-tree when he heard a faint hissing, got up by three "peacocks" that were cosily wintering there, and who, on being ejected, one by one showed their resentment by raising and depressing their wings with continued uproar. These sounds, it would seem, are sometimes made during courtship, for Mr. Edwards says that when he began to collect butterflies in England he heard the "peacocks" make a rapping noise when many were flying together, and that the male did so when in hot pursuit of the female. The "Camberwell beauty" (*Vanessa antiopa*), that has a distinct resemblance to a flying horseshoe fungus, must be placed in the front rank of performers. Mr. A. H. Jones tells us, in the 'Entomological Magazine,' that in 1872 a sleepy female that came into his possession in a hybernating condition would, when disturbed, partially expand her wings, and at the same time produce a grating sound that seemed to come from their base; and Charles Wrackle says, in 'Insect Life' for January, 1889, that when in Lorraine he saw two "Camberwell beauties" walking round one another on a beech-stem, and, agitating their wings, they produced repeated stridulous sounds. On moving the fore wing of a "Camberwell beauty" over the hinder a music arises that recalls the trickle of the willow-fringed brook, but as a similar note may be evoked from a desiccated "large tortoiseshell" that is wont to sun with expanded wings on the gravel-walk under the elms, it seems to have a truer analogy with a serpentine hiss. On March 26th, 1880, I saw a "large tortoiseshell" fresh from hybernation flutter and drop down torpid on a grass-plot at Guildford. I went and picked it up,

and placed it in the sun at an open window upon a sprig of *Genista*, thinking to hear its waking expostulation; but gratified as would seem with the aroma of spring, it began to vibrate its antennæ, and at length, when it bethought it to open its wings, it darted up high into the air and was gone. The bare reticulated and pitted under surface of the knob of the antennæ—the presumable nose, or position of the sense of smell—is better seen in the “large tortoiseshell” than any of our *Vanessas*. The next year (1881), on April 18th—an Easter Sunday—I chanced to take an afternoon stroll up what was known as the “one-tree hill,” on account of its being surmounted by a wind-swept elm that had spread out its branches, and until you came quite close looked like an oak. Several “peacocks” and “small tortoiseshells” (*Vanessa urticæ*), as I climbed the declivity, were flying along the hedgerow with their wing-markings bleached by the winter to a sepulchral white, and when I had descended into the dell beneath St. Matha’s Hill, I saw a male of the “small tortoiseshell” descend from the pale blue air and settle behind a female, who was basking with expanded wings on a nettle-clump, enjoying the rays of the setting sun. He then patted her with his fore feet, nodded his head, and, fluttering his wings, he made a faint stridulous sound, as I remarked at the time. But when provoked the “small tortoiseshell” becomes more decidedly musical, for it leaves with regret its fairy dreams. A fresh brood of this butterfly, on Aug. 22nd, 1876, hastened to find shelter from an inclement blast in an outhouse in Argyle-shire, and, detaching one of these from the rafters, and placing it on the palm of my hand, I lightly touched the tails of its hinder wings, when it immediately opened both wings at once with a distinct soft and grating sound of sandpaper, and I caused it to perform thus three or four times before I set it free.

The notes of love and rivalry vociferated at the barn-door by the guinea-fowl and cockerel, and struck up on tree and briar by Cicada and Orthoptera, are then rarely sounded out by the Lepidoptera, whose males, like the *beaux* of days gone by, often revel in velvets, satins, and silken sheen, or whose scales kindle with a purple glow as those of the *Morphos* and *Apaturas*. Various ideas have been held in regard to the reason of this

phenomenon. The wing-scales are grooved zigzag, it has been said, and the opposite sides of the grooves are coloured blue and purple, so as to look different when looked at two ways; or their surface is striated or beaded, and when the scratches on a surface run close the mother-of-pearl colours always appear—that is to say, the strange iridescence is shot from the surface of the scales. I have in my hands, thanks to the kindness of a dealer, a perfectly lovely “purple emperor” from the forests of Peru; it is brown and orange, sashed with an emerald edged white ribbon; and I notice that when I hold it head upwards the wings are flaked with silky purple, and the white band has become orange; but when I hold it head downwards this lustre is gone. Hence I conceive it arises from the even rows of rounded scales being set on edge so as to cast behind them broad lines of purple shadow. So the wings of the other *Apaturas* kindle when slant to the light. The tawny *clytie*, common in forest clearings and distributed from Europe to Japan, is wont to assume a delicate strawberry hue, and our own *iris* dons its marine blue. I have often looked at the windows of a dress-shop, but I never saw anything so enchanting as this male costume. Admirers of butterflies are most overcome with the flashing splendour of *Apatura lavinia* and *Morpho cypris*, inhabitants of the forests of Tropical America.

Male butterflies, when not lovely, are sometimes perfumed; the white or yellow *Catopsilias* of the Old World, to which some unite the *Callidryas* of the New, expand scent-fans from under their fore wings, in connection with which there is a chalky spot of different scaling on the hinder. Certain only of the genus *Colias*—as our “clouded yellow,” *C. edusa*—have the spot and not the scent-tuft; there is a patch on the wings of *Hipparchia semele*, that lowers its fore wings and seeks concealment on the heather. No doubt a fragrance of jasmine diffused on the warm air causes the little winged pilgrims to leave the east of Ceylon on the setting in of the north-east monsoon, or rainy season, and crossing the island to travel along the sea-coast in company until they reach the northern extremity, where they are said to cross the strait to the continent of India. Major Neville Maunders, who has investigated the migration of *Catopsilia pyranthe*, says:—“A migratory flight was in full swing on the

day I landed at Colombo (October 25th, 1895), and I certainly thought I had stepped into the land of butterflies." In March, 1803, Mr. Lindley saw a flight of white and yellow butterflies passing south-west at Pernambuco, on the coast of Brazil, and in September, 1890, a migration of the citron-yellow *Callidryas ebule* passing south caused some excitement in Alabama. On Sept. 4th, 1832, when the 'Beagle' was off San Blas, myriads of butterflies of one of the numerous local forms of the "clouded yellow" surrounded the ship. Those flocks of white butterflies seen from time to time on our own south-eastern coast must be susceptible to the charm of colour. A troop of the moth-butterflies, *Urania lelius*, was seen progressing from north to south at Pernambuco at the commencement of June, 1817. These butterfly migrations, like that of the Stork and Swallow, are seasonal. At the leaf-fall, the "American milk-weed butterflies," known as *Danais archippus* or *Anosia plexippus*, are wont to fly south in flocks, and on Sept. 23rd, 1886, they were seen in Maryland, hastening in that direction in the face of a stiff breeze. The male in this genus has what is supposed to be a scent-pouch on the hind wings.

Other insect migrations are periodical, like those of the "Waxwings," and recur in certain years, which are proverbially the weather ones. According to the 'Transactions' of the British Association the climax of the rainfall in our islands that are watered by the cyclones from the west came in 1726, 1728, 1734, 1737, 1744, 1747, 1751, 1756, 1763, 1768, 1770, 1774, 1778, 1782, 1789, 1792, 1794, 1797, 1799, 1804, 1810, 1816, 1821, 1823, 1828, 1830, 1833, 1836, 1841, 1843, 1848, 1852, 1860, 1866—I think I may add 1871, 1879, 1883, 1888, and 1894; and this series of certainly wet years will be found to indicate those which have been determined to be years of most and fewest sun-spots. The inhabitants of Sierra Leone, where an idea has long been prevalent that the locusts or strong-flying grasshoppers can hear, have been wont to drive them away with a clatter, so beyond a doubt it is the rush of their wings which has been compared to the roar of a waterfall that incites them to herd together. These Sierra Leone locusts are wonderful wafters on the gale. When on a voyage to the Mauritius in October, 1863, far out at sea, I picked up one on the deck of the

'Mareschal Pelissier,' sugar ship, and I now imagine it was the pink variety of the *Schistocerca tartarica*, of which Dr. Longstaff has kindly presented me with a specimen. Stray locusts or little flocks have come to the coast of Britain in 592, 874, 895, 1031, 1693, 1748, 1797, 1809, 1843, between 1846 and 1849, between 1857 and 1864, in 1868 and 1869, 1874 and 1876, and again in 1880. Commonly they have been the "migratory locust," but in 1869 *tartarica* arrived. These, however, were merely the scouts of great troops which have periodically deployed northward over Europe about the years 183, 475, 558, 593, 840, 852, 866, 874, 886, 1031, 1086, 1091, 1336, 1354, 1363, 1368, 1374, 1475, 1527, 1536, 1542, 1547, 1648, 1684, 1689, 1693, 1712, 1728, 1741, 1748, 1803, 1811, 1828, 1837, 1842, 1846, 1860, and 1869. Unless it be their large eyes and tinsel glitter, I do not know the incentive that caused the "four-spotted dragon-flies" (*Libellula quadrimaculata*) to assemble in bands and defile from the polders of Holland, or to set forth on a pilgrimage from the reedy source of the Elbe, Saal, Weser, or Abi in or about 1091, 1143, 1494, 1586, 1623, 1659, 1673, 1681, 1740, 1744, 1746, 1761, 1775, 1779, 1816, 1832, 1839, 1855, and 1867. On July 9th, 1908, following the recurring heat-waves that came with May, and, as seemed to me, when the spotted side of the sun rolled towards the earth, a swarm arrived in the island of Alderney from the French coast. On Sept. 4th, 1890, a flight of *Æschna eremita* was noticed in Wisconsin, in North America. A general spread of moths and butterflies northward over Europe took place in or about 1727, 1734, 1748, 1789, and 1790; in 1803 and 1804, 1811, 1816 to 1819, 1825 and 1826, 1831 to 1833, 1835 to 1837, in 1839, 1842, 1846 to 1852, in 1855, 1857 to 1860, in 1865, 1867 and 1868, 1870 to 1872, 1875 to 1877, 1880 to 1883, 1888 and 1889, in 1894, 1899 and 1900. When "Bath whites," "Camberwell beauties," "clouded yellows," "queens of Spain," and "tailed blue" butterflies were seen on the cliffs of Sussex and Kent; when "convolvulus," "madder," or "oleander" hawks came to the garden flowers, two other visitors, *celerio* and *lineata*, being blown across on the breathing of the sirocco from Africa to Montpellier in June, 1834; then the "humming-bird moth," that swarms where the tepid waves of the Mediterranean dash

on their tideless shore, like its namesake, the "rufus humming-bird," that appears in Canada with the gush of the spring tide, has been seen poising where the flowering creepers festoon the porch. *Deiopeia pulchella*, distributed from India to the Cape, has created surprise in the stubble-field, and *Sterrhia sacraria*, its compatriot, has been seen fluttering at the evening lamp. Some little latitude must be here allowed, for the only example I have of the latter moth I captured at Shanklin on Oct. 9th, 1869, and about the year 1898 I found a "convolvulus hawk" floating in the water at the Needles; indeed, there has always been a presentiment that these stray butterflies and moths have not really flown over the Channel, but have arrived as passengers on board ship, while it cannot be overlooked that the "clouded yellow butterfly" was found exhausted on the beach at Deal at the commencement of August, 1908, when the south-west wind was blowing. In or about 1100, 1502, 1741, 1798, 1803, 1818, 1828, 1836, 1842, 1851, 1860, and 1879 the "painted lady butterfly," that must have been locally abundant, flew about in detachments, or migrated northwards over Europe in flocks; naturally the male and female would coquet in the air—there must have been some contention—and then, as I believe there is evidence to show, the whole assemblage wafted off like smoke on the sweep of the sirocco. The "small tortoiseshell" (*Vanessa urticae*), as is known, employs a red secretion to free itself from the chrysalis-case, and this may prove an attraction. Our pious ancestors were often startled by blood prodigies, owing to the fungus stains that appear in paste, on bramble-leaves, and alpine snow; but in 1553, when a multitude of butterflies swarmed throughout Germany, and sprinkled plants, leaves, buildings, clothes, and men, there was little scope for credulity, and in 1608 a church and wall in the warm suburbs of Aix, in Provence, it was very evident, had been in like manner aspersed. The North American *Vanessa californica* is known to migrate, for in August, 1889, when ascending Mount Shasta, Mr. C. L. Hopkins, far above snow-line, saw a large flock going south-west. This butterfly has the appearance of being the ancestral form of our small and large "tortoiseshell," which the Rev. G. H. Rayner had known to pair. Mr. William White once found a web of caterpillars on Highgate Hill, from which he reared an individual on nettle that

resembled both, and which Dr. Butler remarked would answer well for *californica*. Indeed, it would seem, from Mr. W. G. Wright's plates of the 'Butterflies of the West Coast of North America,' the familiar butterflies of our woods and lanes had their origin there, for what we breed as a variety is there a recognized species, and each of the several kinds is there a link in a chain of butterflies differing slightly from one another in wing pattern. To some extent our butterflies vary in like manner as you go south in Europe, and a series so arranged is instructive, each form being adapted to its circumstances.

(To be continued.)

[RELIQUIÆ ANTIQUÆ. SCRAPS FROM ANCIENT
MANUSCRIPTS. . . . EDITED BY THOMAS WRIGHT
. . . . AND JAMES ORCHARD HALLIWELL. . . .
VOL. I. LONDON . . . 1841.]

By G. E. H. BARRETT-HAMILTON.

(p. 133) NAMES OF THE HARE.

THE following very curious composition is taken from a collection of English and Anglo-Norman poems written in the reign of Edward I., and preserved in MS. Digby 86, Bodleian Library, 4to, vellum, fol. 168 :—

Les noms de un levre en Engleis.

The mon that the hare i-met,
Ne shal him nevere be the bet,
Bote if he lei doun on londe
That he bereth in his honde,
Be hit staf, be it bouwe,
And blesce him with his helbowe ;
And mid wel goed devosioun
He shal saien on oreisoun
In the worshipe of the hare,
Thenne mai he wel fare.

The hare, the scotart,
The bigge, the bouchart,
The scotewine, the skikart,
The turpin, the tirart,
The wei-betere, the ballart,
The go-bi-dich, the soillart,
The wimount, the babbart,
The stele-awai, the momelart,
The evele i-met, the babbart,
The scot, the deubert,
The gras-bitere, the goibert,
The late-at-hom, the swikebert,
The frendlese, the wodecat,
The brodlokere, the bromkat,

The purblinde, the fursecat,
 The louting, the westlokere,
 The waldenlie, the sid-lokere,
 And eke the roulekere;
 The stobbert, the long-here,
 The strau der, the lekere,
 The wilde der, the lepere,
 The shorte der, the lerkere,
 The wint-swifft, the sculkere,
 The hare-serd, the heg-roukere,
 The deudinge, the deu-hoppere,
 The sittere, the gras-hoppere,
 The fitelfot, the foldsittere,

(* p. 134)

*The liztt-fot, the fernsittere,
 The cawel-hert, the worttrophere,
 The go-bi-grounde, the sittest-ille,
 The pintail, the toure-hohulle;
 The coue-arise,
 The make-agrise,
 The wite-wombe,
 The go-mit-lombe,
 The choumbe, the chauart,
 The chiche, the couart,
 The make-fare, the breke-forewart,
 The fnattart, the pollart,
 His hei nome is srewart;
 The hert with the letherene hornes,
 The der tha woneth in the cornes,
 The der that alle men scornes,
 The der that nomon ne dar nemnen.
 When thou havest al this i-said,
 Thenne is the hare miztte alaid;
 Thenne miztt thou wenden forth,
 Est and west and south and north,
 Wedrewardes so mon wile,
 The mon that con ani skile.
 Have nou godne dai, sire hare,
 God the lete so wel fare,
 That thou come to me ded,
 Other in cine, other in bred! Amen!

Mdn.

NOTES AND QUERIES.

MAMMALIA.

Audacity of the Fox.—There is no part of the Oakley country where Foxes are more in evidence than in the numerous woods and plantations in the neighbourhood of Turvey and Stagsden, in Bedfordshire, where probably a dozen or more litters are reared every season. I have known this locality intimately all my life, and many are the instances of the boldness of Foxes, especially when with young, that have come under my notice, but never previously have I heard of a Fox actually attacking people. In May of 1909 a farmer friend of mine was passing at some little distance from a spinney where a vixen was known to have cubs some six or seven weeks old (into the earth of which a terrier had been sent a day or two previously), when she dashed out from the hedgerow and came straight for him, snarling and snapping, and approaching by a succession of short jumps until within a few feet of him. Having no weapon to defend himself with, he could only keep shouting at the Fox, and backing quickly away from the covert-side in the meantime. The vixen eventually slowly returned into the plantation. Previous to this instance a keeper, whilst gathering ants' eggs for his young Pheasants, had been somewhat similarly attacked in another plantation some distance away by what may have been a different vixen.—J. STEELE-ELLIOTT (Dowles Manor, Salop).

Albino Pigmy Shrew (*Sorex minutus*).—Owing to the kindness of one of my naturalist correspondents I have lately received a perfect albino of the Pigmy Shrew (*Sorex minutus*). This beautiful little creature is quite white throughout, including claws and tail. It is a male, and was taken at Brandon, Suffolk, in October of last year. The only other record that I can find of an albino of this species is by Barrett-Hamilton ('Irish Naturalist,' March, 1895, p. 76), who says:—"Sir Douglas Brooke has an albino example, obtained in Fermagh."—GORDON DALGLIESH (Midhurst, Sussex).

Beaked Whale in Norfolk Waters.—Considerable interest attached to the stranding of a whale at Holme-next-the-Sea, near Hunstanton, on Dec. 13th last. It had been sighted in difficulties in the shallow

waters of the Wash, blowing and lashing the waters as it passed Hunstanton. It appeared to have been badly wounded. It measured 27 ft. in length, with a girth of some 15 ft. Length of beak, 18 in., and both jaws equal. The head was described as rising abruptly from the base of the upper jaw to a distance of 2 ft. 2 in. Other measurements were given, and a photograph shown me, which made it out to be beyond doubt the Beaked or Bottle-nose Whale (*Hyperoodon rostratum*), and was a male. A local gentleman, at my suggestion, attempted to discover the teeth, but evidently he did not cut deeply enough, or in the wrong place, for he found none. After causing much stir in the surrounding country, from the publicity given to it by a newspaper correspondence respecting its identity, the Customs authorities ordered its burial in the sands. Mr. Genochio, of H. M. Customs, assured me that this is the fifth whale, none of which was under 22 ft., that has come ashore on the north-west coast of Norfolk within two years. It is more than a pity that no capable person appeared sufficiently interested in their appearance to at least identify them.—A. H. PATTERSON (Great Yarmouth).

AVES.

Willow-Wren in Yorkshire.—In 'The Zoologist' (1910, p. 401), Mr. Brock has given a very exhaustive account of "The Willow-Wrens of a Lothian Wood," a monograph with a wealth of observations which would have gladdened old Gilbert White. It is almost impossible to overestimate the value of such observations in working out the life-history of the birds as is described in the above article. In comparing Mr. Brock's with my own observations for this district, I find that the average date of first arrivals will be about four or five days earlier, but it is very irregular in its appearance. Frequently we have a spell of severe weather at or about their average date of arrival, when of course they are much delayed. I have known them arrive near Windermere in early April, and in normal numbers, a week before any have been seen in this neighbourhood. Mr. Brock gives the average clutch as about six, which, I think, will be slightly higher than here. I should give the average at not more than 5.5; and, contrary to what one would expect, Mr. Brock gives a higher proportion of second broods than obtains in this district. Is Mr. Brock quite sure that what he calls "second broods" have not in some instances had their first nests destroyed? At any rate, I should think that not ten per cent. here have second broods. In average seasons the difference in length of time between the arrival of males

and females here is not so marked as in the district to which Mr. Brock refers, but of course much depends upon the weather. As regards the direction of the opening of the face of nest, much depends upon the configuration of the ground in the nesting area. Where the ground slopes abruptly to the north, it is only natural to suppose that the general direction of the opening of the nest will have a northern aspect; other things, however, being equal, I think they seem to prefer a southern aspect.—E. P. BUTTERFIELD (Bank House, Wilsden, Bradford).

Migration of Linnets in Surrey.—About three years ago I noticed for the first time the complete disappearance of Linnets (*Acanthis cannabina*) from this part of the country in winter. My observations extend more or less to the whole county, except the extreme east and west. Roughly speaking, Linnets seem to disappear from October to March, and the careful notes I have kept during the last three winters convinces me that I am not overlooking the species. It is often easy to be mistaken in asserting that a bird is not found in a certain locality. I need hardly add that in the breeding season Linnets are very conspicuous and abundant on the gorse-commons of Surrey. I should like to know whether other observers confirm the existence of this migratory movement. There is no mention of the fact in Bucknill's 'Birds of Surrey,' nor in any of the regular textbooks that I have looked at. Is this movement something new? Does it extend to other southern counties of England? What has been observed as to the migratory habits in Linnets? — HAROLD RUSSELL (Shere, Surrey).

An Albino Bunting.—In reference to Mr. Warde Fowler's interesting note on the above (vol. xiv. p. 471), I may say that in March, 1905, in North Anglesey, I saw a very pale coloured Bunting, though not an albino, which was undoubtedly a Yellowhammer. It was in a flock of about fifty Yellowhammers about a farmyard, and was very conspicuous amongst the other birds. The primaries and tail-feathers were practically white, and the rest of the plumage more or less fawn-coloured. On the wing it looked very much like an escaped Canary.—S. G. CUMMINGS (Upton, Chester).

Birds and Berries.—Mr. Aplin (vol. xiv. p. 394) remarks on the partiality of the Greenfinch for the berries of the sweet-briar, a fact which I have particularly observed for many years past. We have here a small shrubbery or thicket which was planted with a view to providing a quiet and secure retreat for the birds, and a supply of food for them in the shape of berries. The berry-bearing shrubs

and bushes growing there include the sweet-briar (in abundance), *Cotoneaster simonsi*, *C. microphylla*, *Mahonia aquifolia*, *Cratægus pyracanthus*, elder, whitethorn, wild rose, &c. For many years a number of Greenfinches have come regularly to feed on the fruit of the sweet-briar. I have sometimes watched them from a window at a distance of only a few feet, and it has always appeared to me that they eat the seeds only, rejecting the soft red pulp. I have seen these birds, too, devouring the berries of the winter-thorn, *C. pyracanthus*, and also the pretty apple-like fruit of *Cotoneaster simonsi*, which they apparently deal with in the same way as the sweet-briar hips. I believe, however, that these last are preferred to any other kind of berry. They are also much relished by both Cole-Tits and Marsh-Tits. Long-tailed Field-Mice consume large quantities of the fruit of both wild-rose and sweet-briar. To get at the ripe berries of the privet, the Bullfinch forgets his shyness and ventures into gardens containing hedges of this plant, even approaching close up to the windows of houses. The grape-like clusters of violet-coloured berries produced by the common evergreen barberry (*Mahonia aquifolia*), in spite of their intense sourness, are much sought after by birds of several kinds. I have watched Blackcaps and Garden-Warblers feasting on them, and staining their breasts with the rich crimson juice. Blackbirds are sure to find them out, and rapidly reduce their numbers. I think the berries of the cuckoo-pint, or "lords and ladies" (*Arum maculatum*), are, as a rule, rejected by birds of all kinds, being of a more or less poisonous nature. Yet I once saw a Robin with one in its beak. — G. T. ROPE (Blaxhall, Suffolk).

PISCES.

Ambicoloured Turbot.—Numerous accounts of so-called "double flat-fishes" have appeared from time to time in natural history journals, but I think many more occur than ever find that distinction. In a copy of Buckland's 'Familiar History of British Fishes,' which belonged to my father, the late Rev. Robert Elmhirst, of Farnham Lodge, near Knaresborough, he has sketched the head of a left-handed ambicoloured Turbot, caught at Redcar on Oct. 17th, 1877, and written: "Dark on both sides, except a small place on the head; top fin thus," and figures the anterior end of the dorsal fin free and projecting, as is often in such cases, over the eyes. The eyes are drawn in almost natural positions, so that the fish probably closely resembled that described by Mr. J. Ritchie in 1908 (an ambicoloured Turbot with eyes approximately normal in position) in the 'Annals of Scottish Natural History.' — RICHARD ELMHIRST (Millport, N.B.).

NOTICES OF NEW BOOKS.

The Coming of Evolution; the Story of a great Revolution in Science. By JOHN W. JUDD, C.B., LL.D., F.R.S.
Cambridge University Press.

THERE are evolutionists and evolutionists: those whose studies and knowledge compel them to hold fast to that conclusion as a necessity for thought and work; and others who are loyal to the great conception, without possessing the experience that proclaims its truth. There is of course a still larger number who deny evolution on non-scientific grounds. To all these the logic of this little book should prove very useful, though Prof. Judd in his few pages, can of course, only sketch the principal movements in the great battle that has been fought, and now—we may be allowed to say—won.

“*Ideas* of evolution, both in the organic and the inorganic world, existed but remained barren for thousands of years,” and Prof. Judd gives us an excellent illustration of what that sentence means. “Talking with Matthew Arnold in 1871, he laughingly remarked to me, ‘I cannot understand why you scientific people make such a fuss about Darwin. Why, it’s all in Lucretius!’ On my replying, ‘Yes! Lucretius guessed what Darwin proved,’ he mischievously rejoined, ‘Ah! that only shows how much greater Lucretius really was—for he divined a truth, which Darwin spent a life of labour in groping for.’”

In this small publication is an ample vindication of the part played by a few geologists in clearing the way for Darwin. In 1797, the year in which Hutton died, were born George Poulett Thomson (who afterwards took the name of Serape) and Charles Lyell. Both were brought up under the strongest influences of the then prevalent anti-evolutionary teachings, but both ultimately became champions of evolution, and headed the successful revolt against catastrophism, and the substitution in its place of uniformitarianism, or, in other words, evolution. “The

cockpit in which the great battle between catastrophism and evolution was fought out" was the Geological Society of London. Some may be surprised, but few indeed will disagree with the following statement of Prof. Judd :—" Were I to assert that if the ' Principles of Geology ' had not been written we should never have had the ' Origin of Species,' I think I should not be going too far; at all events, I can safely assert, from several conversations I had with Darwin, that he would have most unhesitatingly agreed in that opinion." The ever wise catholicity and candour of Darwin are enhanced by that statement, and his great theory loses none of its originality thereby. We have drawn particular attention to the claims made for geologists as having occupied positions in the firing line of the evolutionary battle, and perhaps this is the greatest feature of the book, for that statement is not so well known as to require no re-telling. It is, however, to be remarked that we find no reference to Herbert Spencer !

In conclusion, we may perhaps give a quotation from outside Prof. Judd's book, but it is not from an opponent. Huxley wrote* :—" *History warns us, however, that it is the customary fate of new truths to begin as heresies and to end as superstitions; and, as matters now stand, it is hardly rash to anticipate that, in another twenty years,† the new generation, educated under the influences of the present day, will be in danger of accepting the main doctrines of the ' Origin of Species ' with as little reflection, and it may be with as little justification, as so many of our contemporaries, twenty years ago, rejected them.*"

Heredity in the Light of Recent Research. BY L. DONCASTER, M.A. Cambridge University Press.

THIS small book is a digest of the latest views concerning "heredity," a somewhat neglected factor in the consideration of animal evolution, and a most important element to be considered by those who are interested in the progress and advancement of human societies. With the first view 'The Zoologist' is more particularly concerned.

* ' Collected Essays,' vol. ii. p. 229.

† This was published in 1880.

These excellent "Cambridge Manuals of Science and Literature," in which this publication is included, bear the *imprimatur* of the Cambridge University Press, and we are thus justified in concluding that Mr. Doncaster has not misrepresented the philosophical conclusions on evolutionary questions which are in the main held by the zoological school of that city. Nowhere is the name of Darwin more honoured, nowhere are his conclusions more deeply studied and valued, but in this manual there is no assertion of that "all-sufficiency of natural selection" which is to many evolutionists a stumbling-block. Neither is there any sign of that some time prevalent non-recognition of other theories that may be said to supplement, and in some points qualify, the great theory as left by its master. Thus, in the discussion on "Variation," we read:—"The recognition of discontinuity in variation, which we owe chiefly to the work of Bateson in England and De Vries in Holland, is one of the chief advances which the study of the subject has made since the time of Darwin." The question as to the inheritance of acquired characters is cautiously discussed, and the opinion expressed that most cases which at first sight seem to support the theory "are equally explicable in the view that both parent and offspring are susceptible to the action of the external factor; what is inherited is not the character acquired, but the innate power of acquiring it." Mendel receives a just appreciation in the chapter devoted to "Mendelian Heredity," and all thinkers will agree with Mr. Doncaster in the remark: "One cannot avoid speculating on the possible effects on biological thought had the experiments and conclusions of his now famous contemporary ever come to the knowledge of Darwin." No theory in the great Darwinian evangel has been more neglected and discredited than that of Pangenesis; it is now, however, apparently being recognized as stimulative, "and to a great extent it led to the formulation of other theories of heredity." It will probably be found to contain a still higher meaning, and we may profitably find some philosophical peace from the conflicting disputations of "Neo-Darwinians" and "Neo-Lamarckians" by going back to Darwin.

Ornithological Notes from a South London Suburb, 1874-1909.

By F. D. POWER, M.R.C.S. Henry J. Glaisher.

LOVERS of Nature, condemned to live amid the grim respectability of a London suburb, where even the builder can scarcely find more available sites on which to wreak his activity, may well feel surprised to read in the pages of this book that its author has been able to record the appearance of no fewer than one hundred and twenty-five species of birds at Brixton and its immediate neighbourhood. This is the result of thirty-five years' observation, mostly in the garden attached to his own house, but is in a line of migration, which, if not very marked when the birds are arriving in spring, is most pronounced and unmistakable at the time of the autumn passage.

The birds are thus enumerated:—

- I. Residents, comprising 29 species.
- II. Summer visitors, numbering 37 species, of which 17 have been found nesting, though only 13 do so now; 9 are seen only occasionally; and 6 are reckoned accidental.
- III. Winter migrants, 18.
- IV. Occasional 24;—9 summer; 15 autumn and winter.
- V. Accidental 26;—6 summer; 20 autumn and winter.
- VI. Various, 6 ("all, of course, escapes").

This list is already attenuated, for a not inconsiderable number are now disappearing, or have disappeared.

The "Migration Notes" at the end of this small volume are suggestive and important, and the publication itself shows how Nature can be studied in an urban district.

The Home-Life of the Spoonbill, the Stork, and some Herons.

Photographed and described by BENTLEY BEETHAM, F.Z.S.
Witherby & Co.

THIS is another record of enthusiastic and patient bird-watching, and another example of the great service to ornithology rendered by photography. It is by the aid of these publications that we acquire a personal acquaintance with living birds, and forget for the time the preserved skins which we treasure so carefully and love so well. Mr. Beetham has visited the haunts

of the Spoonbill, Stork, and Common and Purple Heron, and has seen for himself and recorded for us many incidents of their home-lives, while thirty-two photographic plates illustrate his narrative. He has also referred to one peculiarity in animal life, the study of which will have a great future. He writes:—"There are personalities in birds just as in human beings, though through lack of intimacy they tend to pass unnoticed." This is a well-known observation so far as domestic animals are concerned, but is as yet inadequately observed and more inadequately recorded. When a bird-watcher is also what we call a "man of the world," and ceases to believe that many human traits and weaknesses are outside the lives of other animals, he will find that even among birds none is thoroughly bad, and none thoroughly good, and that a personal element pervades the whole. The bird-watcher will then provide material for enlarging the base of psychology. Aviculturists could already say much on this matter.

This small publication has followed Mr. Macpherson's 'Home-life of a Golden Eagle,' noticed in our volume for 1909, and we hope that a series may be thus inaugurated.

OBITUARY.

CHARLES KINGSLEY SIDDALL.

WE greatly regret to learn that our contributor, Mr. C. K. Siddall, passed away at 23, Eaton Road, Chester, on November 16th, 1910, in his thirty-second year, after a long illness. Two communications from his pen appeared in our last volume, the year of his decease. His parents have since published a posthumous paper in separate form, entitled 'Bird-Life in a Suburban Garden—The Garden that I Love,' for circulation among his many friends.

EDITORIAL GLEANINGS.

"It is with pleasure that I send you,* for your natural history column in New Zealand, some notes on *Notornis hochstetteri*," writes Dr. A. B. Meyer, of Hohenzollern Street, Berlin. Dr. Meyer was formerly director of the Dresden Museum, which is the fortunate possessor of the third *Notornis*, and it was he who changed the bird's specific name from *mantelli* to *hochstetteri*. "The specimen in the Dresden Museum," he says, "was captured alive by a dog towards the close of the year 1879, and was on sale in Dunedin, but the New Zealand Government of that day was not up to its task, apparently because no naturalist put the matter in the right light. The skin and skeleton were then sent to London, where they were on sale for two years without finding a buyer. At last they were offered to me for the Dresden Museum. The institution was known in England, where I had many personal friends, as a museum with an ambition to rise. I did not dare to spend the money of the Government in purchasing the specimen of one bird, although nearly extinct, but I found a patron, who furnished me with the funds. As far as I remember, I bought the *Notornis* for £110, but I do not remember whether it was by auction or in the ordinary way of a transaction. Some time after it came into the possession of the museum as a gift of the patron who supplied the funds, I received a letter from the New Zealand Government, asking me to surrender the specimen for the price paid by the museum, and a collection of New Zealand birds as well. Of course, I refused the offer. In any case, the rules of the museum would not have allowed me to accept it. I named the species *Notornis hochstetteri*, and described the skeleton and the skin in scientific journals. The bird has also been dealt with by the late Professor T. J. Parker, Dr. W. B. Benham, Sir Walter Buller, and Messrs. Hutton and Drummond, and the Hon. Thomas Mackenzie wrote a letter entitled 'The Rare New Zealand Bird' to the London 'Times' in October, 1898. You will probably find something of interest in my paper on 'The Eggs of the Moa' in 'The Ibis,' 1903,

* James Drummond, F.L.S., &c., who provides the articles "In Touch with Nature."

which has been revised and annotated by Professor Benham in the same journal of the same year. Mr. Travers, of Wellington, wrote to me in February, 1903, stating that a new Moa's egg had been found, and that the price was £180." — ('The Lyttelton Times,' June 11th, 1910.)

RHEE. — The following observations upon the Rheas of Uruguay by the Consul of the United States of America in Monte Video are interesting both from a commercial and a zoological point of view :—

"The native 'Ostrich' or Nandu (*Rhea americana*) of Uruguay and Argentina resembles the African bird in a general way, but is smaller, of a mixed grey colour, and has three toes, whereas the larger species has only two. A smaller species (*Rhea darwini*) is found in Patagonia, and seems to range further north; a third species (*Rhea macrorhynca*) being known. The males are polygamous, each having five or six females, generally keeping together in flocks of from fifteen to thirty, and are found roaming about the open country of Uruguay. The average height is 5 ft., the weight 80 to 100 lb. each. Their food consists of grass and insects. Several females lay their eggs in one nest, which is merely a hole found anywhere in the ground. The eggs weigh about 2 lb. each, are of a sordid greenish-yellow, and are sat upon and hatched in forty days, solely by the male. The Nandus are easily tamed, and may be occasionally seen domesticated. The wings and tail are considered great table delicacies, the other portions being very greasy and of a fishy flavour. The eggs also are relished.

"To secure the feathers—which have become an important article of export—the birds, at the time the plumage is full, are driven into previously arranged nets by peons, who pull out the feathers. They are sorted and graded and placed in their natural state in parcels of three-fourths of a kilo. (1.65 lb.) each. When disinfected and placed in boxes ready for export each box contains 100 to 200 kilos. (221 to 441 lb.) of feathers. Each bird yields about 600 grammes (1½ lb.) of marketable feathers, the best being valued here at 4 dol. 86 c. to 6 dol. 20 c. per kilo. (2.2 lb.), the inferior grades bringing from 3 dol. 10 c. to 4 dol. 65 c. During the year 1908 about 15,000 kilos. (33,069 lb.) were exported to France, the United States, Spain, and Germany, the shipments for 1909 being nearly 25,000 kilos. (55,115 lb.). The export duty is based on a valuation of 2 dol. 50 c. to 2 dol. 59 c. per kilo., on which the duty is 1 per

cent.; on each 100 pesos (103 dol. 40 c.) of duty there is an additional duty of 1 per cent.

"The majority of the feathers are very fine, sometimes equalling and even excelling the African in quality, but smaller, which is remedied by joining three feathers lengthwise. The large, specially selected feathers used on women's hats bring 15 dol. to 25 dol. per kilo.

"Some years ago there were nearly 100,000 native Rheas in Uruguay, but the scarcity of food, due to drought and locusts, caused many of them to migrate to Argentina, whence they never returned. At the present time there are about 50,000, the number having been slowly decreasing, as so many were shot for their feathers. However, this year the Government of Uruguay has made an effort to protect them, and it is hoped that their numbers will again increase, as they are one of the nation's important assets."—(Diplomatic and Consular Reports, No. 4605, "Uruguay," 1909.)

INTRODUCTION OF THE HUNGARIAN PARTRIDGE INTO THE UNITED STATES.—"Owing to the confusion of names, it is impossible to separate with certainty the Hungarian from the English Partridges in the records of importations into America, but the earliest attempt to introduce the Hungarian Partridge as such into American covers seems to have been made in 1899,* when 24 birds brought from Europe were placed on a private preserve at Lynnhaven, Princess Anne County, Va. This venture was subsequently transferred to Montague, Essex County, Va., and fresh importations were made until by 1906 about 180 birds had been brought over. Meantime, sportsmen and preserve owners in other States were making occa-

* As far back as the latter part of the eighteenth century the Grey Partridge had been introduced into the United States by Richard Bache, son-in-law of Benjamin Franklin, who stocked his place on the Delaware River, near the present town of Beverly, N. J., with English Pheasants and Partridges in large numbers; and attempts were subsequently made from time to time by wealthy landowners in New Jersey and Virginia to introduce these birds, but all were failures. The most elaborate was made by Pierre Lorillard, who established three game preserves of 100, 40, and 25 acres, respectively, on his place at Jobstown, Burlington County, N. J., known as the Rancocas Stud Farm, and put up costly houses for breeding Partridges and Pheasants, which he imported from England for the purpose. There is now no trace of any of these birds. ('Forest and Stream,' xiv. p. 103, Sept. 3rd, 1885.)

sional importations. In 1900, 97 of the birds were imported and liberated in the Willamette Valley, Oregon, where the Ringneck Pheasant had been successfully introduced a few years previously; in 1904, 192 were liberated on Hilton Head Island, South Carolina, and 57 in Fraser Valley and other places in British Columbia; in 1905, 20 were placed on a preserve in Massachusetts, and 91 on one in North Carolina; in 1906, besides a fresh lot that went to the Virginia preserve mentioned, birds were placed on preserves in New York, New Jersey, Pennsylvania, North Carolina, and Mississippi. In addition to these, which consisted of comparatively small consignments, 1000 were imported in 1906 by the State Game Commissioner of Illinois and 200 by the State Game Warden of Kansas for restocking the covers of those States. The last two importations are apparently the earliest official efforts to introduce the Hungarian Partridge into any State. In 1907 about 2500 more were brought in for this purpose, and in 1908 the number of official importations rose to 12,000, while in 1909 it advanced to the important total of 27,000. The States thus experimenting with the acclimatization of this popular game bird include California, Connecticut, Delaware, Illinois, Indiana, Kansas, Nebraska, New Jersey, and Washington.

"The total importations of Partridges from July 1st, 1900, to December 31st, 1909, are shown in detail in the following table:—

Importations of European Partridges, July 1, 1900, to Dec. 31, 1909.

Period.	Unspecified.	Hungarian.	Total.
July 1 to Dec. 31 1900...	315	200	515
1901.....	40	20	60
1902.....	4	62	66
1903.....	72	—	72
1904.....	23	228	251
1905.....	364	181	545
1906.....	311	2,250	2,561
1907.....	422	2,556	2,978
1908.....	957	11,875	12,832
1909.....	1,665	27,425	29,090
Total	4,173	44,797	48,970

"While every effort has been made to insure accuracy in these figures, they are only approximate, because sometimes it is impossible

to ascertain the mortality on the ocean voyage, the figures being based in these cases on the number shipped. The mortality *en route*, under the best care, may be safely placed at 20 to 25 per cent., and is sometimes much greater. Thus, of 400 Hungarian Partridges shipped from England in 1906, consigned to the Essex Park Game Preserve in Virginia, only 50 reached their destination alive. While this loss of 350 out of 400 in crossing the ocean and making the land voyage from New York to Essex County, Va., is exceptionally great, other instances might be cited where the percentage of loss was very high, even after the experience derived from ten years of importation. On the other hand, an occasional consignment will come through very well. Thus in a recent shipment of 300 birds from Bohemia to Windsor Locks, Conn., only 5 died." — HENRY OLDYS 'Yearbook of Department of Agriculture for 1909,' Washington.

"A REMARKABLE scene was witnessed in Durban Bay recently, when thousands of 'Cape Salmon,'* chased up the harbour entrance by Porpoises, were engulfed in a narrow strip of water at the harbour extension works. When the tide receded, the fish fell an easy prey to a horde of coolies, who speedily gathered them, while the Natal Police secured large hauls, which were distributed to the crews of H.M.S. 'Forte' and other ships. Some of the fish weighed upwards of 25lb."—'Shooting Times,' January 14th, 1911.

[I have also seen Porpoises in regimental order patrolling the shore at Durban, and afterwards entering the harbour there in a similar formation.—Ed.]

* *Otolithus æquideus*.





ACHATINA FULICA (NAT. SIZE).